

Industrial, Commercial, or Institutional Water User Conservation Plan
for Pruven Aggregates, Inc.'s Water Treatment System

On December 28, 2007, Pruven Aggregates, Inc. submitted a request to the New Hampshire Department of Environmental Services (NHDES) to certify a bulk water treatment system for surface withdrawals from the Belamy River. This water use conservation plan is submitted pursuant to Env-Ws 390.08.

(a) Water Used for Existing and Anticipated Uses.

3) Processing. The existing surface water pumphouse withdraws water from the Belamy River for use in washing sand and stone aggregate. Usage has historically been defined by the pump capacity, which has been reported to NHDES through the water use registration program. Water is transported to an aggregate wash plant via pipeline. Used and diverted water is discharged to an on-site settling pond. The settling pond is dredged periodically and allows for desired percolation of the wastewater into the groundwater aquifer. The groundwater aquifer supplies nearby municipal groundwater wells.

4) Product Ingredient. Of the existing surface water withdrawal, a portion of the water will be diverted from the water pipeline to supply a new bulk water treatment system. The system is the subject of Pruven's recent certification application and is presently in the design stages at NHDES.

Pruven estimates that 150 gallons/minute of pumped water will be diverted to the filtration equipment, while 650 gallons/minute will continue to serve the existing wash plant and sand and stone aggregate operations. Of the 650 gallons/minute serving the aggregates side, a minimal amount of recycled wash plant water is used to fill a water truck which sprays the grounds for dust control.

Pruven's truck fleet is washed towards the Main Gate on Mast Road using the municipal water supply. Municipal water is also utilized for sanitary services in the buildings and the bathrooms.

(b) Water Meters.

In the past, water usage has been reported based on pump capacity and run time data. As part of the water treatment system project, Pruven is proposing to install an in-line magnetic flow water meter to measure and record water usage. The intended meter will generate an automatic record of gallonage and volume of usage. Pruven is proposing to locate one in-line meter at the pumping device and another meter past the "Y" supplying to the filtration equipment.

(d) Discharge of Unused Water.

Discharge of unused water not treated by the water system will flow into the settling pond. Water in the pond is introduced into the groundwater aquifer by gravity percolation.

(f) Water Conservation Practices.

The water treatment system utilizes clarification and filtration media to purify water. The media are cleaned by two distinct backwash processes known as a clarifier flush and a filter backwash. The clarifier flush occurs periodically throughout a normal 24-hour period. The filter backwash occurs with less frequency.

The waste from the clarifier flush and filter backwash cycles would go to a separate holding tank as they contain excess alum and/or other coagulation chemicals that are used in the water treatment process and are tied up in these waste solids. Decanted water from this backwash holding tank can be recycled back to the water treatment plant for treatment at a rate of up to five percent (5%) of the system flow. The balance of the tank contents (including waste solids) is not suitable for reintroduction into the treatment system, or other reasonable on-site usage, and is typically sent to the sewer system or is trucked from the site for disposal.

The flush and backwash is initiated by timed interval or headloss through the filter and clarifier. Pruven intends to fit the system with automated leak detectors to monitor for equipment failures such as ruptures, leaks, and malfunctions.

In relation to the sand and stone aggregate operation, upgrades to existing water consumption practices are planned as part of the water filtration installation. For example, switching the plant to a high pressure wash system is likely to conserve water and compensate for volumes diverted to the filtration system. The timetable for improvements is related to the duration of the DES approval process. Recycled wash plant water is presently used for dust control.

No new lawns are being proposed by Pruven. Should lawns become part of the reclamation plan for exhausted aggregate areas, such lawns will be installed with automatic watering devices equipped with water conservation sensors (i.e., technology to prevent the sprinklers from turning on when watering is unnecessary).